

PATENT**IN THE CLAIMS**

Please amend the claims as follows:

1. (Currently Amended) A method for setting an atrioventricular delay in a cardiac stimulation device, the method comprising:
monitoring for atrial events; ~~[[and]]~~
adjusting an atrioventricular delay until an intrinsic ventricular event is detected;
maintaining the adjusted atrioventricular delay for a predetermined number of cardiac cycles; and
storing the adjusted atrioventricular delay if at least a predetermined percentage of ventricular events during the predetermined number of cardiac cycles comprise intrinsic ventricular events.
2. (Original) The method of claim 1, wherein monitoring comprises monitoring for intrinsic atrial events.
3. (Original) The method of claim 1, wherein monitoring comprises monitoring for stimulated atrial events.
4. (Original) The method of claim 1, wherein adjusting an atrioventricular delay comprises adjusting a hysteresis value.
5. (Original) The method according to claim 3, further comprising increasing a base stimulation rate to induce delivery of atrial stimulation pulses;
measuring an average atrioventricular conduction time following delivery of atrial stimulation pulses; and
calculating an atrial-ventricular hysteresis based on the measured average atrioventricular conduction time.

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6. (Original) The method according to claim 2, further comprising decreasing a base stimulation rate to inhibit delivery of atrial stimulation pulses; measuring an average atrioventricular conduction time following sensing of intrinsic atrial events; and calculating an atrial-ventricular hysteresis based on the measured average atrioventricular conduction time.

7. (Original) The method according to claim 1, further comprising determining an atrioventricular delay on a periodic basis.

8. (Original) The method according to claim 4, wherein adjusting the atrial-ventricular hysteresis comprises:

calculating an average atrioventricular conduction time from a plurality of atrioventricular conduction time measurements;

calculating a measure of variability of the atrioventricular conduction time measurements; and

calculating the hysteresis value based on the average atrioventricular conduction time and the measure of variability of the atrioventricular conduction time measurements.

9. (Currently Amended) A cardiac stimulation device for automatically measuring an atrioventricular conduction time, comprising:

means for monitoring for atrial events;

means for monitoring for intrinsic ventricular events;

means for determining atrioventricular conduction times for a plurality of cardiac cycles;

means for determining, based on the atrioventricular conduction times, a conduction time value [[by]] for which at least a predetermined percentage of ventricular events that occur during the plurality of cardiac cycles comprise intrinsic ventricular events have occurred; and

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means for setting an atrioventricular delay to a value based on the conduction time value.

10. (Original) The stimulation device of claim 9, wherein the means for monitoring monitors for intrinsic atrial events.

11. (Original) The stimulation device of claim 9, wherein the means for monitoring monitors for stimulated atrial events.

12. (Original) The stimulation device according to claim 9, further comprising means for reducing a base stimulation rate to inhibit atrial stimulation; and means for measuring atrioventricular conduction times following detected intrinsic atrial events and for calculating an atrial-ventricular hysteresis based on the measured atrioventricular conduction times.

13. (Original) The stimulation device according to claim 9, further comprising means for increasing a base stimulation rate to induce delivery of atrial stimulation, and means for measuring atrioventricular conduction times following delivery of atrial stimulation pulses, and for calculating an atrial-ventricular hysteresis based on the measured atrioventricular conduction times.

14. (Currently Amended) A method of measuring atrioventricular conduction times in an implantable cardiac stimulation device, the method comprising:
recording a [[plurality of]] conduction [[times]] time between each of a plurality of atrial events and corresponding [[intrinsic]] ventricular events;
determining a conduction time value by which at least a predetermined percentage of the [[intrinsic]] ventricular events comprise intrinsic ventricular events [[have occurred]]; and
setting an atrioventricular delay to the conduction time value.

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15. (Original) The method of claim 14, wherein recording comprises recording a plurality of conduction times between intrinsic atrial events and corresponding intrinsic ventricular events.

16. (Original) The method of claim 14, wherein recording comprises recording a plurality of conduction times between stimulated atrial events and corresponding intrinsic ventricular events.

17. (Original) The method of claim 14, wherein determining comprises processing the conduction times to generate statistical information relating to the conduction time values.

18. (Original) The method of claim 17, wherein the statistical information comprises an average conduction time and a measure of variability of the conduction times.

19. (Original) The method of claim 18, wherein the conduction time value is set to a value based on the average conduction time and the measure of variability.

20. (Original) The method of claim 14, wherein setting the atrioventricular delay comprises adjusting a hysteresis value to adjust the atrioventricular delay.

21-40. (Cancelled)

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41. (Currently Amended) A cardiac stimulation device comprising:
monitoring circuitry that is operative to monitor for atrial events and for
corresponding intrinsic ventricular events;
processing circuitry that is operative to determine a plurality of an atrioventricular
conduction time times for each of a plurality of the monitored atrial events and
corresponding monitored intrinsic ventricular events;
determining circuitry that is operative to determine a conduction time value by
which at least a predetermined percentage of intrinsic ventricular events have occurred;
and
control circuitry that is operative to set an atrioventricular delay to a value based
on the conduction time value.

42. (Original) The stimulation device of claim 41, wherein the monitoring
circuitry monitors for intrinsic atrial events.

43. (Original) The stimulation device of claim 41, wherein the monitoring
circuitry monitors for stimulated atrial events.

44. (Original) The stimulation device according to claim 41, wherein the
control circuitry is operative to set the atrioventricular delay to the conduction time
value.

45. (Original) The stimulation device of claim 41 further comprising a
processor that comprises at least one of the processing circuitry, determining circuitry
and control circuitry.

46. (Newly Presented) The method according to claim 1 further comprising
determining an atrioventricular hysteresis in accordance with the stored atrioventricular
delay.

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47. (Newly Presented) The method according to claim 1 further comprising further adjusting the atrioventricular delay if a predetermined percentage of ventricular events during the predetermined number of cardiac cycles comprise paced ventricular events.

48. (Newly Presented) A method for setting an atrioventricular delay in a cardiac stimulation device, the method comprising:

- monitoring for atrial events;
- adjusting an atrioventricular delay until an intrinsic ventricular event is detected;
- maintaining the adjusted atrioventricular delay for a predetermined number of cardiac cycles; and
- further adjusting the atrioventricular delay if a predetermined percentage of ventricular events during the predetermined number of cardiac cycles comprise paced ventricular events.